

Lesson 30 Worksheet

Math for standards

SHOW ALL WORK!!!

Name _____

Date _____

1. Calculate the following by hand. (4 points each)

a. ${}_8P_4$

b. ${}_8C_4$

c. ${}_{13}P_5$

d. ${}_{15}C_3$

e. ${}_7P_1$

f. ${}_8C_7$

2. Determine first whether the situation is a permutation or a combination. Then find the answer. You may calculate by hand or calculator.

a. In how many different ways can you arrange the letters q, r, s, t, u, v, and w?

b. How many different three-digit numbers can be formed by the digits 1, 2, 3, 4, 5, & 6?

c. A committee of five people is to be selected at random from a group of 30 people that includes Frank, Jake, Jesse, Erica, and Sabrina. Find the probability that the committee will consist of Frank, Jake, Jesse, Erica, and Sabrina.

d. There are fifteen finalists for a spelling bee. Gift certificates are awarded for first, second, third, and fourth place. In how many different ways can the prizes be awarded?

e. How many different ways can two captains be chosen from a team of 18 people?

f. In how many different orders can 9 text messages be read?

g. A random drawing is held to determine the class representatives. Three students will be chosen from a class of 21 students. How many different pairs of students can be chosen?

h. In how many different ways can 8 classes be scheduled in a 8-period day?

i. How many different three-digit numbers can be formed by the digits 1, 2, 3, 4, 5, 6, and 7 if each digit can be used only once?

j. In how many different ways can seven books be placed next to each other on a shelf if the books on the ends do not change?

Open-Ended Question: Make sure as you answer the open-ended question that you show your work AND explain how you know you are doing the correct work. YOU MUST EXPLAIN WHAT YOU ARE DOING!!!

The Powerball lottery game is a game where you pick 5 regular balls out of 59 and 1 Powerball out of 39.

- A. In how many different ways can numbers be picked for a Powerball ticket?
- B. What is the probability of picking all 5 white balls and the Powerball correctly to win the jackpot (the smallest jackpot is \$10 million)?
- C. What is the probability that you win the smallest prize (\$3) for matching only the Powerball?